

# Chadwick D. Severt

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## OBJECTIVE STATEMENT

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As a graduate and postdoctoral researcher, I have focused on computational engineering, particularly related to heat transfer. I also have experience with modeling, optimization, and control. I am currently seeking employment as a mechanical engineer in the Kansas City area, primarily related to energy or thermal systems engineering. With the significant change in transitioning from academic research to industry, I am open to entry-level or mid-level positions.

## EDUCATION

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<b>University of Kansas</b>	Lawrence, KS
Bachelor of Science, Mechanical Engineering, GPA: 3.89	May 2018
Doctor of Philosophy, Mechanical Engineering, GPA: 3.98	May 2022

## WORK HISTORY

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<b>University of South Carolina</b>	Columbia, SC
<u>Postdoctoral Research Fellow</u>	August 2022-Present

- Conducting research of computational engineering methods with a focus primarily on modeling, optimization, and control
  - As part of an ongoing NASA funded project in collaboration with an industry partner: developed optimal sensor placement and aerostructural control algorithms. Wrote source code of the developed methods to be supplied to the sponsor and presented results through reports and presentations. This effort has led to two conference papers and one journal article (in preparation) and was recently approved for a second phase.
  - Investigating exoskeleton optimization using multi-fidelity modeling, sensitivity analysis, and design space reduction. Utilizing both in-house code and open-source software to perform surrogate modeling and optimization that will lead to more efficient exoskeleton design.
  - Contributing to the development of data-driven models for droplet dynamics. Leveraging machine learning to allow for more accurate large-scale simulation of multiphase flows including sprays. This effort has led to one conference paper and one journal article (in preparation).
  - Contributing to a project that involves data-driven modeling to assist optimal material design. Developing accurate machine learning models that will accelerate optimization allowing for the design of complex structures with light weight and high factor of safety.
- Assisting in project management and advising of graduate students
  - Compile monthly reports and presentations to research sponsors.
  - Contribute to the writing of research proposals with a large input on the proposed methods. Four proposals have been submitted with two of them being accepted and one awaiting a decision. Funding organizations include NSF, NASA, and DOD.
  - Filled in for advisor by overseeing a large project (three faculty members, ten graduate students, and an industry partner) funded by the Office of Naval Research for one month. Delegated tasks, compiled reports, and met with industry partners.
  - Weekly meetings with graduate students advising their research, troubleshooting issues, and assisting in journal writing and creating presentations.

<b>University of Kansas</b>	Lawrence, KS
<u>Graduate Research Assistant</u>	August 2018-May 2022

- Conducted research involving lightweight, high performance heat transfer geometries (Advisor: Dr. Theodore Bergman)
  - Developed new algorithms to design complex heat sink geometry in order to enhance heat transfer and reduce the amount of material needed.

- Modified a custom computational fluid dynamics code to numerically predict heat transfer and fluid flow around complex geometries.
- Developed a topology optimization method to incorporate the effects of radiation heat transfer on heat sink design when coupled with conduction.
- Contributed as first author to 4 journal articles and a conference paper.

Graduate Teaching Assistant – Heat Transfer and Fluid Mechanics (5 semesters) August 2018-May 2022

- Led a discussion section involving 50+ students for one semester.
- Tutored students through office hours and review sessions.
- Graded homework assignments and exam problems.

Graduate Research Assistant-Industry Sponsored January 2019-May 2019

- Collaborated with the University of Maryland on an industry sponsored research project involving air processing.
- Worked on the computational design of turbomachinery using commercial software (Ansys Vista).
- Generated three dimensional schematics of an air cycle unit.
- Calculated preliminary performance metrics and presented results to industry sponsor.

Undergraduate Research Assistant January 2017-May 2018

- Worked on NSF-sponsored research project dealing with high performance heat exchangers for air cooling and water conservation (Advisor: Dr. Theodore Bergman).
  - Performed data acquisition using a wind tunnel with multiple sensor types.
  - Analyzed raw data and presented results in tables and figures.

**AWARDS AND FELLOWSHIPS**

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- Outstanding Graduating Senior – Mechanical Engineering May 2018
  - Wallace S Strobel Scholarship August 2018
  - Engineering Deans First Year Doctoral Fellowship August 2018-May 2019
  - Wilburn & Mina Wyatt Memorial Scholarship August 2019

**Technical Skills:** Matlab, Python, Pytorch, Solidworks, Autodesk Inventor, Ansys Fluent, Ansys Vista, Interactive Heat Transfer